

REMARKS

Introduction:

Claims 90, 96, 104, 118, and 119 are amended, and claims 103 and 117 are canceled. In addition, claims 124-132 are new. Claims 90-92, 94-102, 104-106, 108-116, and 118-132 are now pending. (Claims 1-89, 93, and 107 were previously canceled.) Applicants respectfully request reexamination and reconsideration of the application.

Rejections In View Of Prior Art:

Claims 90-92, 94-106, and 108-123 were rejected under 35 USC 103(a) as obvious in view of US Patent No. 3,550,261 to Schroeder ("Schroeder") and US Patent No. 5,152,695 to Grabbe et al. ("Grabbe"). Applicants respectfully traverse this rejection.

Independent claim 90 recites a "contact structure" that comprises "a base portion," "a tip portion," and "a beam portion between the base portion and the tip portion." The base portion is "attached to a conductive element" on a substrate. The beam portion has three important features.

First, "a width dimension of the beam portion decreases along all of the length of the beam portion." This can provide an advantage of more evenly distributing stress along the beam portion as a force is applied to the tip portion. (See, e.g., the specification page 19, line 14 to page 20, line 4.)* The foregoing decreasing width dimension can also provide an advantage of decreasing the achievable pitch (e.g., spacing between center points) of adjacent tip portions in a group of such contact structures. (See, e.g., the specification page 20, lines 14-20.)* Second, "all of the length of the beam portion is shaped in a convex curve that is convex with respect to the surface of the substrate." A non-limiting example of a beam portion with a convex curve is shown in Figure 2G, and exemplary possible advantages of such a curve are discussed in the specification at page 18, line 10 to page 19, line 13.* Third, "the width dimension of the beam portion is parallel to the surface of the substrate where the beam portion and the tip portion meet."

* Applicants note that claim 90 is not limited to providing such an advantage. Applicants note this advantage solely as evidence that the subject matter of claim 90 is an improvement over the prior art, which is an indication that the subject matter of claim 90 is not obvious in view of the prior art.

This can provide an advantage of reducing or minimizing twisting of the beam portion as the beam portion deflects in response to a force applied to the tip portion; such twisting can, in some instances, weaken the beam portion.*

Applicants respectfully assert that none of the prior art references of record disclose any type of contact structure with a beam that includes all three of the foregoing features. Applicants respectfully assert that, because Schroeder's beam 20 is not displaced away from the surface of device 10 on which pad 12 is located, Schroeder's beam 20 does not meet at least the second and third features discussed above. Applicants also assert that Grabbe does not disclose at least the third feature discussed above with respect to arms 22, and Grabbe does not disclose at least the second feature above with respect to arms 62, 92, and 112. That is, because hinge section 66 and jog section 68 of arms 62 are curved in opposite directions, if one is deemed to be convex with respect to a particular surface, the other cannot be convex to the same surface. The same conclusion follows for hinge section 96 and jog section 98 of arms 92 and hinge section 116 and jog section 118 of arms 112. (See Figures 11, 14, and 17 of Grabbe.)

Applicants note that tips 30 disclosed in US Patent No. 5,613,861 to Smith et al. ("Smith") appear to be located solely at an extreme end of Smith's contacts. Therefore, none of tips 30 can meet the recitation that "a width dimension of the beam portion decreases along *all of the length* of the beam portion" with regard to the first feature discussed above. Applicants also note that contact structures disclosed in EP 802419 (e.g., probes 15C) consist of a conductive film formed as traces on an insulation resin film 14 and therefore do not meet various features recited in claim 90, including without limitation that the contact structure is both "freestanding" and "electrically conductive."

Moreover, there is no logical reason to select individual beam features from multiple prior art references and combine those selected features to arrive at a beam that includes the three beam features discussed above that are recited in claim 90. In fact, the only way to accomplish this would be to use Applicants' specification as a guide for selecting individual features from different prior art beams, and then to further use Applicants' specification as a guide for combining those features into a single beam. As is known, the PTO cannot rely on Applicants' specification as a guide for selecting individual features from the prior art and combining those features to arrive at a claimed

invention.

For at least the foregoing reasons, independent claim 90 is patentable over the prior art of record, whether taken alone or in combination.

Claims 91, 92, 94-102, and 118-121 and also new claims 124-128 depend directly or indirectly from independent claim 90 and, at least because of that dependency, are also patentable over the prior art of record. Moreover, these claims recite additional features not taught or rendered obvious by the prior art of record. For example, claims 126 and 127 recite a stop structure that is not taught or rendered obvious by the prior art of record, and claim 128 recites features relating to spacing between centers of adjacent tip portions that Applicants assert distinguishes over the prior art of record.

Independent claim 104 recites a contact structure with a beam portion that includes features that are generally similar to the three features of the beam of claim 90 discussed above. For at least this reason, claim 104 as well as claims 105, 106, 108-116, 122, 123, and 129-132—which depend directly or indirectly from claim 104—are patentable over the prior art of record whether taken alone or in combination.

Conclusion:

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 426-2106

Respectfully submitted,

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